

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KARUR – 639 005

B.Sc., ZOOLOGY COURSE STRUCTURE UNDER CBCS SYSTEM

(For the candidates admitted from the year 2015-16 onwards)

SEMESTER	COURSE	SUBJECT TITLE	SUBJECT CODE	INSTR. HOURS WEEK	CREDIT	EXAM HOURS	MARKS		TOTAL
							INT	ESE	
I	Tamil - I	Tamil – I	U15L1T1	6	3	3	25	75	100
	English - I	English – I	U15L1E1	6	3	3	25	75	100
	Core Course – I	Biology of Invertebrates	U15ZO1C1	6	5	3	25	75	100
	Core Course – II	Practical – I (For CCI & III)	-	3	-	-	-	-	-
	First Allied Course-I	Allied Chemistry - I	U15CH1A1	5	3	3	25	75	100
	First Allied Course – II	Allied Chemistry – II (Practical)	-	2	-	-	-	-	-
	Value Education	Value Education	U15VE1	2	2	3	25	75	100
				30	16				500
II	Tamil – II	Tamil – II	U15L2T2	6	3	3	25	75	100
	English – II	English – II	U15L2E2	6	3	3	25	75	100
	Core Course – II	Practical – I (For CC I & III)	U15ZO2C2P	3	4	3	25	75	100
	Core Course – III	Biology of Chordates	U15ZO2C3	6	5	3	25	75	100
	Allied Course - II	Allied Chemistry – II (Practical)	U15CH2A2P	2	4	3	25	75	100
	Allied Course – III	Allied Chemistry - III	U15CH2A3	5	3	3	25	75	100
	Environmental Studies	Environmental Studies	U15ES2	2	2	3	25	75	100
				30	24				700
III	Tamil - III	Tamil- III	U15L3T3	6	3	3	25	75	100
	English – III	English -III	U15L3E3	6	3	3	25	75	100
	Core Course – IV	Cell biology and Biophysics	U15ZO3C4	6	5	3	25	75	100
	Core Course V	Practical – II (For CC IV & VI)	-	3	-	-	-	-	-
	Second Allied Course-I	Allied Botany – I	U15BO3A1	5	3	3	25	75	100
	Second Allied Course II	Allied Botany II – (Practical)	-	2	-	-	-	-	-
	Non Core Elective I	Medicinal Botany	U15BO3N1	2	2	3	25	75	100
				30	16				500
IV	Tamil – IV	Tamil- IV	U15L4T4	6	3	3	25	75	100
	English – IV	English -IV	U15L4E4	6	3	3	25	75	100
	Core Course – V	Practical – II (For CC IV & VI)	U15ZO4C5P	5	5	3	25	75	100
	Core Course VI	Genetics and Molecular biology	U15ZO4C6	2	4	3	25	75	100
	Second Allied Course II	Allied Botany – II (practical)	U15BO4A2P	2	4	3	25	75	100
	Second Allied Course III	Allied Botany – III	U15BO4A3	5	3	3	25	75	100
	Skill Based Elective I	Human Genetics and Endocrinology	U15ZO4S1	2	4	3	25	75	100
	Non Core Elective II	Economic Botany	U15BO4N2	2	2	3	25	75	100
				30	28				800
V	Core Course – VII	Physiology and Biochemistry	U15ZO5C7	5	5	3	25	75	100
	Core Course – VIII	Biotechnology and Microbiology	U15ZO5C8	5	4	3	25	75	100
	Core Course – IX	Biostatistics and Bioinformatics	U15ZO5C9	4	3	3	25	75	100
	Core Course - X	Practical III (For CC VII to IX)	-	3	-	-	-	-	-
	Core Course - XI	Practical IV (For CC XII to XIII)	-	3	-	-	-	-	-
	Elective Course I	Poultry Science	U15ZO5E1	4	4	3	25	75	100
	Skill Based Elective II	Medical Laboratory Technology	U15ZO5S2	2	4	3	25	75	100
	Skill Based Elective III	Vermitechnology	U15ZO5S3	2	4	3	25	75	100
Soft Skill Development	Soft Skill Development	U15SSD3	2	2	3	25	75	100	
				30	26				700
VI	Core Course - X	Practical III (For CC VII to IX)	U15ZO6C10P	3	4	3	25	75	100
	Core Course – XI	Practical IV (For CC XII to XIII)	U15ZO6C11P	3	5	3	25	75	100
	Core Course – XII	Ecology,Evolution and Toxicology	U15ZO6C12	6	5	3	25	75	100
	Core Course – XIII	Developmental biology and immunology	U15ZO6C13	6	5	3	25	75	100
	Elective Course II	Aquaculture	U15ZO6E2	5	5	3	25	75	100
	Elective Course III	Entomology	U15ZO6E3	6	4	3	25	75	100
	Extension Activities	Extension Activities	-		1				
	Gender Education	U15EA4	1	1	3	25	75	100	
				30	30				700
TOTAL				180	140				3900

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BOARD OF STUDIES IN ZOOLOGY

CONTROLLER OF EXAMINATIONS

Sl. No.:

Subject Code:

U15L1T1

அரசு கலைக் கல்லூரி (தன்னாட்சி) - ஈரூர் - 5
கலையியல் / அறிவியல் / வணிகவியல் / பட்ட வகுப்பு
 (2015 - 2016 ஆம் கல்வியாண்டு முதல் பயிலும் மாணவர்களுக்குரியது)
 பகுதி - 1 பொதுத்தமிழ் -1 - முதல் பருவம்
 மரபுக்கவிதை, புதுக்கவிதை, சிறுகதை, இலக்கணம், இலக்கிய வரலாறு

பொதுத்தமிழ் -1 முதல் பருவம்

(மரபுக்கவிதை, புதுக்கவிதை, சிறுகதை, இலக்கணம், இலக்கிய வரலாறு)

அலகு 1 மரபுக்கவிதைகள்

- | | | |
|--|---|-----------------|
| அ) தமிழ்த்தாய் | - | பாரதியார் |
| ஆ) புத்தகச்சாலை | - | பாரதிதாசன் |
| இ) புத்தரும் ஏழைச்சிறுவனும்
(ஆசியஜோதி) | - | கவிமணி |
| ஈ) நோயற்ற வாழ்வு | - | நாமக்கல் கவிஞர் |
| உ) இரசம் தீர்ந்து விட்டது
(இயேசு காவியம்) | - | கண்ணதாசன் |
| ஊ) அதிவீரராம பாண்டியன் | - | சுரதா |

அலகு 2 புதுக்கவிதைகள்

- | | | |
|---|---|-----------------|
| அ) மீரா கவிதைகள் (நான் மனிதன்) | - | மீரா |
| ஆ) தேசப்பிதாவுக்கு ஒரு தெருப்பாடகனின் அஞ்சலி (கண்ணீர்ப்பூக்கள்) | - | மு.மேத்தா |
| இ) வடலூரும் வார்தாவும்(நேயர் விருப்பம்)- | - | அப்துல் ரகுமான் |
| ஈ) சர்ப்ப யாகம் | - | சிற்பி |
| உ) விசுவாமித்திரர் (அவதார புருஷன்) | - | வாலி |
| ஊ) நிலத்தை ஜெயித்த விதை
(இன்னொரு தேசிய கீதம்) | - | வைரமுத்து |
| எ) ஒரு வண்டி சென்றியூ(10 கவிதைகள்)- | - | ஈரோடு தமிழன்பன் |

அலகு 3 சிறுகதை

- | | | |
|--------------------|---|--------------------------|
| சிறுகதைத் தொகுப்பு | - | நியூ செஞ்சுரி புக் ஹவுஸ் |
|--------------------|---|--------------------------|

அலகு 4 இலக்கணம்

- | | | |
|-------------------------|---|---------------------------|
| வல்லினம் மிகும் இடங்கள் | - | நல்ல தமிழ் எழுத வேண்டுமா? |
| வல்லினம் மிகா இடங்கள் | - | அ.கி.பரந்தாமனார் |

அலகு 5 இலக்கிய வரலாறு

மரபுக்கவிதை, புதுக்கவிதை, சிறுகதை

பரிந்துரை நூல்

- | | | |
|----------------------|---|---|
| முனைவர் கா.வாசுதேவன் | - | பன்முக நோக்கில் தமிழ் இலக்கிய வரலாறு
தேவன் பதிப்பகம், 16/43, திருநகர்,
திருவானைக்கோவில், திருச்சி |
|----------------------|---|---|

ஐந்து அலகுகளிலும் சம அளவில் வினாக்கள் அமைதல் வேண்டும்.

வினாத்தாள் அமைப்பு முறை

பகுதி அ (ஒரு மதிப்பெண் வினா - 20)

- | | |
|--|-------|
| அ) பொருத்தமான விடையைத் தேர்ந்தெடுத்தல் | 5*1=5 |
| ஆ) கோடிட்ட இடங்களை நிரப்புதல் | 5*1=5 |
| இ) பொருத்துதல் | 5*1=5 |
| ஈ) ஒரே சொற்களில் விடையளித்தல் | 5*1=5 |

பகுதி ஆ (ஐந்து மதிப்பெண் வினா)

இது அல்லது அது என்ற வகையில் அமைதல் வேண்டும் 5*5=25

பகுதி இ (பத்து மதிப்பெண் வினா)

ஐந்தில் எவையேனும் மூன்றனுக்கு மட்டும் கட்டுரை வடிவில் விடை எழுத வேண்டும்.

3*10=30

மொத்த மதிப்பெண் -75

Sl. No.:

Subject Code:

U15L1E1

GOVERNMENT ARTS COLLEGE (AUTONOMOUS) KARUR- 05

ALL UG COURSES - I SEMESTER - PART – II - ENGLISH

(For the candidates admitted from the year 2015-16 onwards)

ENGLISH – I

Unit I

- Monday Morning - Mark Twain
My Financial Career - Stephen Leacock

Unit II

- Indian Women - S. Radhakrishnan
Head Ache - R. K. Narayan

Unit III

- Thomas Alva Edison - Egon Larson
Helen Keller - Patrick Pringle

Unit IV

Word Classes

I. Open Classes

1. Nouns
2. Adjectives
3. Verbs
4. Adverbs

II. Closed Classes

1. Pronouns
2. Determiners
3. Prepositions
4. Conjunctions
5. Exclamations / Interjections

Unit V

1. Spelling Rules
2. Words Often Confused or Misused
3. Homophones

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GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KARUR-5

B.Sc. ZOOLOGY – I SEMESTER – CORE COURSE - I

(For the candidates admitted from the year 2015-16 onwards)

BIOLOGY OF INVERTEBRATES

UNIT- I **Phylum protozoa:** General characteristics and classification up to class level giving examples. Detailed Study: *Paramoecium*, General Topics: Protozoan parasites – *Plasmodium* & *Entamoeba* – Life History, Pathogenesis and Control Measures.

UNIT- II **Phylum Porifera:** General characters and classification up to class level giving examples. Detailed Study: *Ascon* sponge, General topics: Canal System in Sponges.

Phylum Coelenterata: General characters and Classification up to class level giving examples. Detailed study: *Obelia*. General Topics: Polymorphism in Hydrozoa, Corals & Coral Reef.

UNIT-III **Phylum Platyhelminthes:** General characters and Classification up to class level giving examples. Detailed study: *Fasciola hepatica*, General topics: Parasitic adaptations.

Phylum Nematelminthes; General characters and classification up to class level giving examples. Detailed study: *Ascaris lumbricoides*. General Topics: Nematode parasites.

UNIT-IV **Phylum Annelida:** General Characters and classification up to class level giving examples Detailed Study: Earthworm. General topics: Excretion in Annelids.

Phylum Arthropoda: General characters and classification up to class level giving examples. Detailed study: Cockroach. General topics: Crustacean Larvae and their significance, Mouth Parts of Insects.

UNIT-V **Pylum Mollusca:** General Characters and Classification up to class level giving examples. Detailed study: *Pila*. General topics: Torsion in Molluscs.

Phylum Echinodermata: General Characters and Classification up to class level giving examples. Detailed Study: *Asterias*. General topics: Larval forms in Echinoderms.

Text Book:

1. Arumugam *et al*, 2013, A Text Book of Invertebrates, by Saras Publications. Nagercoil
2. E.L.Jordan. & Verma.P.S.2006, Chordate Zoology, S.Chand & Company Ltd, New Delhi.

Reference Books:

1. Ekambaranatha Iyer and Ananthkrishnan. T. N., A Manual of Zoology Vol.I & II
2. Barrington. E.J.W. Invertebrates Structure and Function.
3. Barnes, R.D., 1974, Invertebrate Zoology, 4th Ed., Holt Saunders International Edition
4. Kotpal, R.L., A Text Book of Invertebrates, Rastogi Publishers, Meerut.

CHAIRMAN – BOS

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Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS): KARUR-05

B.SC., - I & III - SEMESTER – FIRST / SECOND ALLIED COURSE - I

(For the candidates admitted from the year 2015-16 Onwards)

(FOR BOTANY, MATHEMATICS, PHYSICS & ZOOLOGY MAJOR)

ALLIED CHEMISTRY – I

UNIT - I 1.1 Volumetric Analysis : Standard Solution – Primary and Secondary

(15 hours)

UNIT –II (15 hours) Standards – Types of titrimetric reactions – reactions – redox- precipitation – EDTA titrations.

1.2 Laboratory Hygiene and Safety: Storage and handling of corrosive, flammable, explosive, toxic, carcinogenic and poisonous Chemicals.

1.3 Simple first aid procedure for Accidents: Acid in eye, alkali in eye, acid burns, alkali burns, poisoning, inhalation of gases, cut by glasses and heat burns.

2.1 Water: Soft water – Temporary and permanent hardness of water - Treatment of water for municipal purpose – Softening of water - Definition – Softening by Zeolite Process.

2.2 Atomic Structure: Rutherford's Nuclear Atom –Bohr's Model of the atom- Bohr Sommerfeld theory - Distribution of electrons –Paulis Exclusion Principle-Hund's Rule of maximum Multiplicity – Aufbau Principle.

UNIT-III (15 hours)

3.1 Radioactivity – Definition – types of radioactive rays – Nuclear energy – mass defect – binding energy – magic Numbers – Nuclear fission – Nuclear fusion – difference between Nuclear fission and fusion – Nuclear power plant

3.2 Isotopes, Isobars and Isotones.

UNIT – IV (15 hours)

4.1 Classification and Nomenclature of organic of Compounds classification of organic compounds – functional groups – homologous series.

4.2 IUPAC System of nomenclature of simple and complex aliphatic compounds.

UNIT- V (15 hours)

5.1 Polymerisation – Introduction –Preparation of Polymers – addition polymers (Polyethylene, PVC and Teflon) – Condensation polymers (nylon – 6,6 and terylene)

5.2 Synthetic rubbers(BUNA, Butyl rubber and SBR) Thermoplastic and thermosetting plastics.

Books Recommended:

1. R.Gopalan, P.S.Subramanian, K.Rengarajan – Elements of Analytical Chemistry Sultan chand & Sons New Delhi -2
2. B.K.Sharma “Industrial Chemistry” GOEL Publishing House Meerut.
3. P.L.Soni and Mohan Katyal “Text Book of inorganic Chemistry 20th Received Edition, Sultan Chand 1992.
4. U.N.Dash-Nuclear Chemistry Sultan Chand & Sons New Delhi-2.
5. I.L.Finar-Organic Chemistry. The fundamental Principles ELBS English Lan.
6. P.L.Soni H.M.Chawla “Text Book of organic chemistry sultan chand and sons New Delhi-2.
7. B.S.Bahl and Arun Bahl ‘Advanced Organice chemistry S.Chand and Co New Delhi.

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Sl. No.:

Subject Code:

U15VE1

அரசு கலைக் கல்லூரி (தன்னாட்சி), ஈரூர் - 639005
அனைத்து இளநிலை - முதல் பருவம் - பகுதி - 4
(2015 - 2016 கல்வியாண்டு முதல் பயிலும் மாணவர்களுக்கு உரியது)

மதிப்புக்கல்வி

அலகு 1

வாழ்வியல் கல்வி ஓர் அறிமுகம் - தனிமனித நெறிமுறைகள் - சமுதாய நெறிமுறைகள் - ஆன்மீக நெறிமுறைகள் - வாழ்வியல் நெறிகளின் மூலங்கள் - வாழ்வியல் நெறிகளின் அவசியம் - நன்னடத்தையும் நற்செயல்களும் - நற்பண்புகள் உருவாக்கம்.

அலகு 2

சமூக நற்பணி - சமூக நலப்பணித்திட்டங்கள் - சமுதாயத் தீமைகள் குறித்த விழிப்புணர்வு - போதை மருந்துகளுக்கு அடிமையாதல் - மதுப்பழக்கம் - புகைப்பிடித்தல் - தற்கொலை.

அலகு 3

இந்து சமயத்தின் போதனைகள் - இஸ்லாம் போதிக்கும் நெறிகள் - கிறித்துவம் போதிக்கும் நெறிகள் - சமயச் சார்பின்மை - சமய நல்லிணக்கம்.

அலகு 4

காந்தியடிகளின் அகிம்சை கொள்கை - அன்னை தெரசாவின் தொண்டுகள் - தன்னலமின்மையின் வடிவம் பெருந்தலைவர் காமராசர்.

அலகு 5

சமூகநீதி - மனித உரிமைகளும் - அவற்றின் பாதுகாப்பும் - மகளிர்க்கு எதிரான வன்முறைகள் - நாட்டின் ஒருமைப்பாடு.

Text Book:

1. மதிப்புக் கல்வி - Y.K.55, கூட்டுறவு பண்டகசாலை, அரசு கலைக்கல்லூரி(தன்னாட்சி), ஈரூர் - 5.

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Subject Code:

U15L2T2

அரசு கலைக் கல்லூரி (தன்னாட்சி) - ஈநர் - 5
கலையியல் / அறிவியல் / வணிகவியல் / பட்ட வகுப்பு
 (2015 - 2016 ஆம் கல்வியாண்டு முதல் பயிலும் மாணவர்களுக்குரியது)
 பகுதி - 1 பொதுத்தமிழ் -2 - இரண்டாம் பருவம்
 (பக்தி இலக்கியங்கள், சிற்றிலக்கியங்கள், உரைநடை, இலக்கணம், இலக்கிய வரலாறு)

அலகு 1 பக்தி இலக்கியங்கள்

தேவாரம்

- திருநாவுக்கரசர்
(திருவையாறு- 4ஆம் திருமுறை)

நாலாயிர திவ்விய பிரபந்தம்

- மதுரகவி ஆழ்வார்(கண்ணி நுண் சிறுத்தாம்பு)

தெய்வமணிமாலை

- இராமலிங்க வள்ளலார்

பராபரக்கண்ணி

- குணங்குடி மஸ்தான் சாகிபு

யாக்கை நிலையாமை

- திருமந்திரம்

அலகு 2 சிற்றிலக்கியங்கள்

தமிழ்விடுதூது

- முதல் 16 கண்ணிகள்

திருக்குற்றாலக் குறவஞ்சி

- குறத்தி மலைவளம் கூறல்

நந்திக்கலம்பகம்

- பாடல் எண்கள்: 34,35,36,37,38,39,44,45,46,49

அபிராமி அந்தாதி

- 11-20 பாடல்கள்

கயிலாசநாதர் சதகம்

- அரிதெனல், இறந்தும் இருக்கின்றவர், இருந்தும் இறந்தவர், கோபக்கொடுமை, கல்விச் சிறப்பு

அலகு 3 உரைநடை

இனியவை நாற்பது

- முனைவர் இரா.மோகன்

அலகு 4 இலக்கணம்

வாக்கிய வகைகள்

- நல்ல தமிழ் எழுத வேண்டுமா? அ.கி.பரந்தாமனார்

அலகு 5 இலக்கிய வரலாறு

பக்தி இலக்கியங்கள், சிற்றிலக்கியங்கள், உரைநடை

பரிந்துரை நூல்

முனைவர் கா.வாசுதேவன்

-பன்முக நோக்கில் தமிழ் இலக்கிய வரலாறு தேவன் பதிப்பகம்,16/43, திருநகர், திருவானைக்கோவில்,திருச்சி

ஐந்து அலகுகளிலும் சம அளவில் வினாக்கள் அமைதல் வேண்டும்.

வினாத்தாள் அமைப்பு முறை**பகுதி அ (ஒரு மதிப்பெண் வினா - 20)**

அ) பொருத்தமான விடையைத் தேர்ந்தெடுத்தல் 5*1=5

ஆ) கோடிட்ட இடங்களை நிரப்பதல் 5*1=5

இ) பொருத்துதல் 5*1=5

ஈ) ஒரே சொற்களில் விடையளித்தல் 5*1=5

பகுதி ஆ (ஐந்து மதிப்பெண் வினா)

இது அல்லது அது என்ற வகையில் அமைதல் வேண்டும் 5*5=25

பகுதி இ (பத்து மதிப்பெண் வினா)

ஐந்தில் எவையேனும் மூன்றனுக்கு மட்டும் கட்டுரை வடிவில் விடை எழுத வேண்டும்.

3*10=30

மொத்த மதிப்பெண் -75

Sl. No.:

Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS) KARUR- 05
ALL UG COURSES - II SEMESTER - PART – II - ENGLISH
(For the candidates admitted from the year 2015-16 onwards)

ENGLISH – II

Unit I

- The Luncheon - Somerset Maugham
A Cup of Tea - Katherine Mansfield

Unit II

- A Work of Art - Anton Checkov
The Necklace - Guy de Maupassant

Unit III

- My Lord the Baby - Rabindranath Tagore
An Astrologer's Day - R.K Narayan

Unit IV

The Sentence

1. Types of Sentences
2. Simple, Compound and Complex Sentences
3. Sentence Patterns

Unit V

Transformation of Sentences

1. Affirmative into Negative and vice versa
2. Interrogative into Assertive and vice versa
3. Exclamatory into assertive and vice versa
4. Simple, Compound and Complex sentences
5. Voice: Active and Passive
6. Degrees of Comparison

CHAIRMAN – BOS

COE

Sl. No.:

Subject Code:

U15ZO2C2P

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KARUR-5**B.Sc. ZOOLOGY – II SEMESTER – CORE COURSE –II**

(For the candidates admitted from the year 2015-16 onwards)

PRACTICAL I**BIOLOGY OF INVERTEBRATES AND BIOLOGY OF CHORDATES**

- DISSECTIONS** : Earthworm - Nervous System
Cockroach – Digestive System, Nervous System
VIRTUAL DISSECTION
Frog – Digestive, Arterial and Venous System
- MOUNTINGS** : Earthworm – Body & Penial setae.
Cockroach - Mouth Parts
Honey Bee – Mouth Parts
Fish – Placoid, Cycloid & Ctenoid scales.
- SPOTTERS :**
- INVERTEBRATES** : *Amoeba, Paramoecium, Ascon, Sponge – gemmule, Obelia-colony, Physalia, Ephyra larva, Metridium, Fasciola hepatica, Cercaria and Redia larvae. Taenia solium, Taenia – scolex, Planaria, Ascaris – male & female). Microfilaria, Megasclex, Nereis, Nereis-parapodium, Leech – Entire and T.S. Trochophore larva, Penaeus, Scorpion, Lamellidens, Pila, Sepia, Chiton, Astraeas, Echinus, Pedicellaria and Holothuria, Ophiopluteus larva, Bipinnaria larva*
- PROCHORDATES** : *Amphioxus, Ascidia, Balanglossus, Tornaria larva.*
- CYCLOSTOMES** : *Petromyzon*
- PISCES** : *Scoliodon, Narcine, Clarias, Gambusia, Echeneis, Hippocampus (Male), Synapta, Exocoetus, Anabas, Protopterus.*
- AMPHIBIA** : *Rana, Alytes, Hyla, Salamander, Ichthyophis, Axolotal larva*
- REPTILIA** : *Calotes, Draco, Varanus, Naja naja, Vipera russellii, Enhydrina, Chelone*
- AVES** : *King fisher, Psittacula, Columba, Quil feather*
- MAMMALIA** : *Ornithorhynchus, Rattus, Pteropus, Oryctolagus, Loris.*
- DENTITION** : Rabbit, Dog & Man
- OSTEOLOGY** : **Pigeon**-Synsacrum, **Rabbit**-Pectoral and Pelvic girdles, Bones of Fore limb & Hind limb.

A record of laboratory work is to be submitted at the time of Practical Examination**Mark distribution for the Practical Examination:**

1.	Major Practical (Invertebrata / Chordata)	:	25
2.	Mounting	:	15
3.	Spotters: (Invertebrata -2 Chordata – 2 Dentition/Osteology-1)	:	25
4.	Record	:	10
	Total	:	75

CHAIRMAN – BOS

COE

Sl. No.:

Subject Code:

U15ZO2C3

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KARUR-5

B.Sc. ZOOLOGY – II SEMESTER – CORE COURSE -III

(For the candidates admitted from the year 2015-16 onwards)

BIOLOGY OF CHORDATES

- UNIT- I** General characters of Prochordata and its outline classification up to class level.
Detailed study : Prochordata – *Balanoglossus* and *Amphioxus*
General Topics : 1. Origin of chordates.
2. Retrogressive Metamorphosis in Ascidian
- UNIT- II** General characters and classification of Cyclostomes and Pisces up to order level.
Detailed study : *Petromyzon* and *Scoliodon*. (Excluding endoskeleton)
General Topics : 1. Accessory Respiratory organs in Fishes,
2. Migration of fishes
- UNIT-III** General characters and classification of Amphibia and Reptilia up to order level.
Detailed study : *Rana* and *Calotes*. (Excluding endoskeleton)
General Topics : 1. Parental care in Amphibia.
2. Identification of Poisonous and non poisonous snakes of India – Biting mechanism – Poison apparatus.
3. Sphenodon as living fossil
- UNIT-IV** General characters and classification of Aves up to order level
Detailed study : *Columba* (Excluding endoskeleton)
General Topics : 1. Origin of birds
2. Flightless birds and their distribution
3. Flight adaptations in birds
- UNIT-V** General characters and classification of Mammalia up to order level.
Detailed study : *Oryctolagus* (Excluding endoskeleton)
General Topics : 1. Aquatic mammals and their adaptations
2. Prototheria and Metatheria
3. Dentition in Mammals

Text Books:

1. A. Thangamani, A Text book of Chordates –Saras Publications, Nagercoil
2. Ekambarathanatha Iyar and Ananthakrishnan. T. N., A Manual of Zoology Vol.I & II

REFERENCES

1. Chordate Zoology – L. Jordan. and Verma.P.S., S. Chand & Company Ltd
2. Kotpal, R.L.A, Modern Text Book of Zoology-Vertebrates. Rastogi Publication, 2009.

CHAIRMAN – BOS

COE

Sl. No.:

Subject Code:

U15CH2A2P

GOVERNMENT ARTS COLLEGE (AUTONOMOUS): KARUR-05

B.SC., - II & IV - SEMESTER – FIRST ALLIED COURSE -

I

(FOR BOTANY, MATHEMATICS, PHYSICS & ZOOLOGY MAJOR)

(For the candidates admitted from the year 2015-16 onwards)

ALLIED CHEMISTRY – II PRACTICAL

1. Acidimetry and alkalimetry
 - a) Strong acid Versus Strong Base
 - b) Weak acid Versus Strong base.
 - c) Determination of hardness of water
2. Permanganometry
 - a) Estimation of ferrous sulphate using KMnO_4
 - b) Estimation of oxalic acid using KMnO_4
3. Iodometry
 - a) Estimation of copper using thiosulphate
 - b) Estimation of $\text{K}_2\text{Cr}_2\text{O}_7$
 - c) Estimation of KMnO_4 using thiosulphate

II ORGANIC ANALYSIS

A study of reactions of the following organic compounds:

1. Carbohydrate
2. Amide
3. Aldehyde
4. Acid
5. Amine
6. Phenol

The students may be trained to perform the specific reactions like

Test for element

(nitrogen only)

Aliphatic or aromatic,

Saturated or unsaturated and functional group present and record their observation.

CHAIRMAN – BOS

COE

Sl. No.:

Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS): KARUR-05
B.SC., - II & IV - SEMESTER – FIRST / SECOND ALLIED COURSE – III
(FOR BOTANY, MATHEMATICS, PHYSICS & ZOOLOGY MAJOR)
(For the candidates admitted from the year 2015-16 onwards)

ALLIED CHEMISTRY – III

- UNIT-I (15 Hours)** 1.1 Molecular Orbital theory: Basic concepts of M.O. theory – Bonding and antibonding orbitals – Bond order – Application of M.O. theory to H_2, He_2, N_2, O_2 and F_2 molecules.
1.2 Compounds of Sulphur: Preparation, Properties, uses and structures of per acids of sulphur and sodium thio sulphate.
- UNIT –II (15 hours)** **Co-Ordination Chemistry:**
Nomenclature of Mononuclear complexes – Werner, Sidgwick theories
Chelation – Application and structure of EDTA – Biological role of haemoglobin and chlorophyll (Elementary idea)
- UNIT-III (15 hours)** 3.1 Electron displacement Effect: Inductive Effect – Definition – Relative strengths of aliphatic mono carboxylic acids and aliphatic amines
3.2 Stereoisomerism: Optical isomerism – Optical activity – Chirality – Lactic and tartaric acids-racemic mixture- resolution. Geometrical isomerism – Maleic and fumaric acids.
- UNIT – IV (15 hours)** 4.1 Aromatic Hydrocarbons: Structure, Stability, Resonance and aromaticity of benzene. Electrophilic substitution reactions in benzene with mechanism – nitration, sulphonation, halogenation. Naphthalene – isolation, synthesis and properties
4.2 Organic halogen Compounds: Chemistry of Chloroform, Carbon tetra chloride, DDT, BHC and Freon -1,2
- UNIT- V (15 hours)** 5.1 Surface Chemistry: Emulsions, Gels – Definition, Preparation, Properties and applications.
5.2 Chromatography – Column, paper and thin layer chromatography.
5.3 Catalysis-types, Mechanisms and industrial applications.

Books Recommended:

1. P.L. Soni and Mohan katyal “Text Book of Inorganic Chemistry” 20th Revised Edition, Sultan Chand 1992.
2. R.B. Puri and L.R. Sharma “Principles of Inorganic Chemistry” Sultan Chand 1989.
3. R.D. Madan “Modern inorganic Chemistry” S. Chand and Co.Pvt. Ltd., 1987 New Delhi.
4. P.L. Soni “Text Book of Inorganic Chemistry” ,Sultan Chand and Co., New Delhi.
5. B.S. Bahl and Arun Bahl ‘Advanced Organic Chemistry’ S.Chand and New Delhi.
6. B.R. Puri, L.R.Sharma amd madan S.Pathania ‘Principles of Physical Chemistry’ Shoban Lal Nagin Chand and Co., Delhi.
7. P.L Soni “Text Book of Physical Chemistry” Sultan Chand and Co., new Delhi.

Sl. No.:

Subject Code:

U15ES2

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KARUR-05
ALL UG COURSES - II SEMESTER – PART – IV
(For the candidates admitted from the year 2015-16 onwards)

ENVIRONMENTAL STUDIES

Unit 1

Environment – Introduction – Nature – Scope – Content – Need for study: Natural resources – Forest and Energy resources – use and over exploitation –deforestation – Energy resources – reviewable and non reviewable energy resources.

Unit 2

Eco System: Concept – Structure and function – Procedures – consumers and decomposers – Food Chains – Food Webs and Ecological Pyramids – Biodiversity and its conservation : Introduction – definition – genetic – species and eco system diversity – conservation of biodiversity.

Unit 3

Environmental Pollution – Definition – causes – effects and control Measures – Types – Air – Water – Soil – Thermal and Nuclear hazards – solid waste and Management – Disaster Management – Role of an individuals in controlling pollution – Earth Quake – Earth Quake and Cyclone – Flood.

Unit 4

Social issues and the environment: urbanization – urban problems related to energy – Water Shed Management – Environmental ethics: issues and possible solutions – Wasteland reclamation – Climate Change – Global Warming - Acid rain – Ozone layer depletion – Public awareness.

Unit 5

Human Population and the environment: Population growth, Variation among nations – Population explosion – Family Welfare Programme – Human rights – HIV/AIDS – Women and Child Welfare – Role of information technology in environment and human health.

Text Book:

1. சுற்றுச்சூழல் கல்வி - முனைவர். ஆ. சசிலா அப்பாத்துரை -
நியூ செஞ்சுரி புக் ஹவுஸ் (பி) லிட், சென்னை.

CHAIRMAN – BOS

COE

Sl. No.:

Subject Code:

U15L3T3

அரசு கலைக் கல்லூரி (தன்னாட்சி) - ஈநூர் - 5
கலையியல் / அறிவியல் / வணிகவியல் / பட்ட வகுப்பு
(2015 - 2016 ஆம் கல்வியாண்டு முதல் பயிலும் மாணவர்களுக்குரியது)
பகுதி - 1 பொதுத்தமிழ் - 3 - மூன்றாம் பருவம்
(காப்பியங்கள், நாடகம், இலக்கணம், இலக்கிய வரலாறு)

அலகு 1 காப்பியங்கள்

சிலப்பதிகாரம் (புறஞ்சேரியிறுத்த காதை)
 மணிமேகலை (சிறைக்கோட்டம் அறக்கோட்டம் ஆக்கிய காதை)
 கம்பராமாயணம் (இரணிய வதைப்படலம்)

அலகு 2 காப்பியங்கள்

பெரியபுராணம் (இளையான்குடி மாற நாயனார் புராணம்)
 தேம்பாவணி (நாட்டுப்படலம்)
 சீறாப்புராணம் (பாந்தள் வசனித்த படலம்)

அலகு 3 நாடகம்

சேர தாண்டவம் - பாரதிதாசன்

அலகு 4 இலக்கணம்

நிறுத்தக் குறிகள்

அலகு 5 இலக்கிய வரலாறு

காப்பியங்கள், நாடகம்

பரிந்துரை நூல்

முனைவர் கா.வாசுதேவன் - பன்முக நோக்கில் தமிழ் இலக்கிய வரலாறு
 தேவன் பதிப்பகம், 16/43, திருநகர்,
 திருவானைக்கோவில், திருச்சி

ஐந்து அலகுகளிலும் சம அளவில் வினாக்கள் அமைதல் வேண்டும்.

வினாத்தாள் அமைப்பு முறை

பகுதி அ (ஒரு மதிப்பெண் வினா - 20)

அ)	பொருத்தமான விடையைத் தேர்ந்தெடுத்தல்	5*1=5
ஆ)	கோடிட்ட இடங்களை நிரப்புதல்	5*1=5
இ)	பொருத்துதல்	5*1=5
ஈ)	ஓரிரு சொற்களில் விடையளித்தல்	5*1=5

பகுதி ஆ (ஐந்து மதிப்பெண் வினா)

இது அல்லது அது என்ற வகையில் அமைதல் வேண்டும் 5*5=25

பகுதி இ (பத்து மதிப்பெண் வினா)

ஐந்தில் எவையேனும் மூன்றனுக்கு மட்டும் கட்டுரை வடிவில் விடை எழுத வேண்டும். 3*10=30

மொத்த மதிப்பெண் -75

Sl. No.:

Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS) KARUR- 05

ALL UG COURSES - III SEMESTER - PART – II - ENGLISH

(For the candidates admitted from the year 2015-16 onwards)

ENGLISH – III

Unit I

- | | | |
|--------------------------|---|---------------|
| A Prayer for My Daughter | - | W.B Yeats |
| A Poison Tree | - | William Blake |

Unit II

- | | | |
|--------------------------------------|---|-----------------|
| Stopping by Woods on a Snowy Evening | - | Robert Frost |
| Because I Could Not Stop For Death | - | Emily Dickinson |

Unit III

- | | | |
|--|---|---------------|
| My Grand Mother's House | - | Kamala Das |
| Small Scale Reflections on a Great House | - | A.K Ramanujan |

Unit IV

1. Error Correction
2. One word Substitution
3. Idioms and Phrases

Unit V

1. Comprehension
2. Note Making and Summarizing
3. Précis Writing

CHAIRMAN – BOS

COE

Sl. No.:

Subject Code:

U15ZO3C4

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KARUR-5

B.Sc. ZOOLOGY - III SEMESTER – CORE COURSE - IV

(For the candidates admitted from the year 2015-16 onwards)

CELL BIOLOGY AND BIOPHYSICS

- UNIT- I** Cell types –prokaryotic and eukaryotic cells – Ultra structural organization of Plasma membrane– Unit membrane model – fluid mosaic model and functions – Permeability, passive transport, active transport, endocytosis, exocytosis; Modifications of plasma membrane. Cytoplasm – Physico - Chemical and biological properties.
- UNIT-II** Endoplasmic Reticulum -Ultra structure types and functions. Golgi complex – Morphology, structure, role in secretion and other functions. Ribosomes, Lysosome and Centrosome – Morphology, chemistry and functions. Mitochondria – Ultrastructure and functions.
- UNIT-III** Ultra Structure of inter-phase nucleus and nucleolus: Organization of chromosome – Giant chromosomes- Microtubules and microfilaments- Cell cycle-Cell division – mitosis and meiosis. Cancer Biology.
- UNIT- IV** Scope of biophysics: Colloids – types, properties – Electro-kinetic properties, Donnan equilibrium, Tyndall effect, Surface tension, Brownian movement, Filtration, Osmosis, Dialysis, Adsorption, Components of light: Beer-Lambert's law of absorption of light – colorimetry and spectrophotometry- X-ray diffraction
- UNIT- V** Laws of thermodynamics Entropy and Enthalpy; Bioelectricity-Radioactivity – Types, measurement of radioactivity – Geiger – Muller counter. Microscopy – Principles and application of light and electron microscopes (SEM and TEM), Phase contrast and fluorescent microscopes. Centrifugation –Differential and Density gradient centrifuges: Principles, types and application.

Text Book:

1. Arumugam, 2011, Cell Biology, Saras Publications, Nagercoil.
2. Thiraviaraj, S., 1998, Biophysics, . Saras Publications, Nagercoil.

Reference Books:

1. DeRobertis, E.D.P and E.M.F. DeRobertis, 1987, Cell and Molecular Biology. VIII Ed. Lea and Febger, Philadelphia.
2. Powar, C.B. 1989, Essentials of Cytology, Himalaya Publishing House, Mumbai.
3. Subramanian M.A. 2008, Biophysics Principles and Techniques, MJP Publishers.
4. Upadhyay, A., Upadhyay, K., and Nath, N., 2004, Biophysical Chemistry, Himalayas Publishing House, Mumbai.

CHAIRMAN – BOS

COE

Sl. No.:

Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS): KARUR-05
B.Sc., ZOOLOGY – III SEMESTER – ALLIED COURSE - I
(For the candidates admitted from the year 2015-16 onwards)

ALLIED BOTANY - I

(ALGAE, FUNGI, BRYOPHYTES, PTERIDOPHYTES, ECOLOGY AND EVOLUTION)

Unit - I: General characters of Algae. Classification of Algae by Fritsch. Structure and Life history of the following. *Chlamydomonas*, *Volvox*, *Oscillatoria*, *Sargassum* and *Polysiphonia*.

Unit - II: General characters of Fungi. Classification of fungi by Alexopoulos. Structure and Life history of the following *Penicillium*, *Agaricus*, *Fusarium*.

Unit - III: General characters of Bryophytes, Pteridophytes and Gymnosperms. Structure and Life history of *Riccia*, *Selaginella* and *Cycas*.

Unit - IV: Geological era, Types of Fossilization- Structure and reproduction of the following *Rhynia*, *Lepidodendron* and *Lepidocarpon*.

Unit - V: Ecology and Evolution : Ecological factors - Climatic, Edaphic and Biotic factors. Plant adaption - Hydrophytes, Xerophytes and Halophytes. Origin of Life, Theories of Lamarck and Darwin.

Reference Books:

1. Fuller, H.J. and Tippo, 1990 - Collge Botany - Henry, Holt & Co. New Delhi.
2. Gangully, A.K. -General Botany,The New Book Stall,Calcutta,Vol.I, 7th Edt.(1970), Vol.II,6th Edition (1975). New Delhi.
3. K.N. Rao, K. Krishnamurthy and G.S. Rao. 1979. Ancillary Botany, S. Viswanathan.
4. Nathawat, G.S.P.D. Sharma and R.K. Shani 1977. - A Text Book of Botany, Ramesh Book Depo. , Jaipur.
5. Sambamurthy A.V. S.S. 2005. A Textbook of Algae. I.K. International Pvt.Ltd, New Delhi.
6. Vashishta, Sinha A.K, Adarsh Kumar. (2011). Bryophytes, S.Chand &Company ltd., New Delhi.

CHAIRMAN – BOS

COE

Sl. No.:

Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS): KARUR-05
B.Sc., BOTANY – III SEMESTER – NON CORE ELECTIVE - I
(For the candidates admitted from the year 2015-16 onwards)

MEDICINAL BOTANY

UNIT - I: Brief history of medicinal plants. Indian system of medicines - Siddha, Ayurvedha, and Unani systems. Classification of crude drugs and drug adulteration.

UNIT - II: Cultivation and utilization of the selected medicinal plants *Adathoda*, *Aloe*, *Allium*, *Ocimum* and *Vinca* - Role of National Medicinal Plants Board of India.

UNIT - III: Drugs from Leaves - *Atropa*, *Eucalyptus*, *Datura* and *Cassia*. **Flower** - *Eugenia*. **Roots** - *Rauwolfia*. **Bark** - *Cinchona*. **Stem of wood** - *Ephedra*. **Fruits and Seeds** - Wood apple and Coriander. **Underground stem** : Ginger.

Unit - IV: A brief account of drugs acting on the central nervous system, Drugs used in disorders of gastrointestinal tract and cardio vascular drugs used in different treatment methods.

Unit - V: Cultivation of medicinal plants in India. Breeding, Methods applied to medicinal herbs, Plant tissue culture as source of biomedicine.

Reference Books :

1. Dhavan, B.N. (1986), Ayurvedic Research on medicinal plants in India INSA, New Delhi.
2. Trivedi, P.C. (2010) - Ethnic Tribes & Medicinal Plants, Pointer Publishers, Jaipur.
3. Amruth, The medicinal plants magazine (All volumes) Medicinal Plants Conservatory society, Bangalore.
4. Baruah, A. (2011) - Aromatic & Spices Plants : Utilization and Conservation - Pointer Publishers, Jaipur.
5. Prajapathi, Purohit, Sharma and Kumar (2003) - A hand Book of Medicinal Plants. Agrobios Publications, Jodhpur.
6. Sood, S.K. (2015) - Herbal medicine, Pointer Publishers, Jaipur.

CHAIRMAN – BOS

COE

Sl. No.:

Subject Code:

U15L4T4

அரசு கலைக் கல்லூரி (தன்னாட்சி) - ஈரூர் - 5
கலையியல் / அறிவியல் / வணிகவியல் / பட்ட வகுப்பு
(2015 - 2016 ஆம் கல்வியாண்டு முதல் பயிலும் மாணவர்களுக்குரியது)
பகுதி - 1 பொதுத்தமிழ் - 4 - நான்காம் பருவம்
(சங்க இலக்கியம், புதினம், இலக்கணம், இலக்கிய வரலாறு)

அலகு 1

நற்றிணை - 5,21,27,80,92
குறுந்தொகை -10 பாடல்கள் (2,16,20,40,62,67,202,244,263,286)
ஐங்குறுநூறு (அன்னாய் வாழிப்பத்து)
அகநானூறு - 2 பாடல்கள் (10,23)
புறநானூறு - 5 பாடல்கள் (74,192,204,206,312)
கலித்தொகை- 2 பாடல்கள் (11,88)

அலகு 2

சிறுபாணாற்றுப்படை (முழுவதும்)

அலகு 3

பூர்வீக பூமி - தூரியகாந்தன்

அலகு 4 கட்டுரை

பொதுக்கட்டுரை, விண்ணப்பம், மடல், அலுவலகக் கடிதங்கள் எழுதப் பழகுதல்

அலகு 5

இலக்கிய வரலாறு - சங்க இலக்கியம், புதினம்

பரிந்துரை நூல்

முனைவர் கா.வாகதேவன் -பன்முக நோக்கில் தமிழ் இலக்கிய வரலாறு
தேவன் பதிப்பகம்,16/43, திருநகர்,
திருவானைக்கோவில்,திருச்சி

ஐந்து அலகுகளிலும் சம அளவில் வினாக்கள் அமைதல் வேண்டும்.

வினாத்தாள் அமைப்பு முறை

பகுதி அ (ஒரு மதிப்பெண் வினா - 20)

அ) பொருத்தமான விடையைத் தேர்ந்தெடுத்தல் 5*1=5
ஆ) கோடிட்ட இடங்களை நிரப்புதல் 5*1=5
இ) பொருத்துதல் 5*1=5
ஈ) ஓரிரு சொற்களில் விடையளித்தல் 5*1=5

பகுதி ஆ (ஐந்து மதிப்பெண் வினா)

இது அல்லது அது என்ற வகையில் அமைதல் வேண்டும் 5*5=25

பகுதி இ (பத்து மதிப்பெண் வினா)

ஐந்தில் எவையேனும் மூன்றனுக்கு மட்டும் கட்டுரை வடிவில் விடை தருக. 3*10=30
மொத்த மதிப்பெண் -75

Sl. No.:

Subject Code:

U15L4E4

GOVERNMENT ARTS COLLEGE (AUTONOMOUS) KARUR- 05

ALL UG COURSES - IV SEMESTER - PART – II - ENGLISH

(For the candidates admitted from the year 2015-16 onwards)

ENGLISH – IV

Unit I

- Grand Mother's Gold - Ella Adkins
Medieval Magic - Geoffrey Chaucer

Unit II

- The little Man - John Galsworthy
The Pot of Broth - W.B Yeats

Unit III

- The Proposal - Anton Checkov
The Bishop's Candle Sticks - Norman Mc Kinnell

Unit IV

1. Letter Writing
2. Developing Hints
3. Complete the Dialogue

Unit V

1. Essay
2. Group Discussion
3. Interview Techniques

CHAIRMAN – BOS

COE

Sl. No.:

Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KARUR-5
B.Sc. ZOOLOGY – IV SEMESTER – CORE COURSE –V
(For the candidates admitted from the year 2015-16 onwards)

PRACTICAL - II
CELLBIOLOGY AND BIOPHYSICS & GENETICS AND MOLECULAR BIOLOGY

1. CELL BIOLOGY

1. Onion Root Tip - squash preparation to study different stages of Mitosis
2. Grasshopper Testis/
Tradescantia sp. - Squash preparation to study different stages of Meiosis
3. Chironomus Larva - Mounting of Salivary glands and study of Giant Chromosomes.
4. Buccal smear preparation - Showing the Squamous epithelial cells

Spotters:

- | | | |
|--------------------------|------------------------|------------------------|
| 1. Columnar epithelium | 2. Ciliated epithelium | 3. Squamous epithelium |
| 4. Glandular epithelium | 5. Cardiac Muscle | 6. Striated Muscle |
| 7. Non – Striated Muscle | 8. Bone Tissue | 9. Blood of Man |
| 10. Blood of Frog | 11. Micrometer | 12. Camera lucida |

2. BIOPHYSICS

1. Verification of Beer-Lambert law using photoelectric colorimeter

Spotters:

1. pH meter
2. Colorimeter
3. Spectrophotometer
4. Electrophoretic unit

3. GENETICS:

1. Recording of Mendelian Traits in Man.
2. *Drosophila* - Male and Female Identification
3. Human Karyotypes : Normal Male, Down Syndrome, Klinefelter's and Turner's Syndrome
4. Pedigree Analysis.

4. MOLECULAR BIOLOGY

1. DNA isolation in Eukaryotes / Prokaryotes : Demonstration only
2. Electrophoretic separation of Proteins : Demonstration only

Spotters:

1. PCR- Machine
2. DNA-Model
3. RNA Model
4. Wire frame and ball & stick model for Myosin and cytochrome
5. ATP Model
6. Phylogenetic tree

A record of Laboratory Work shall be submitted at the time of Practical Examination.

Mark distribution for the Practical Examination:

- | | |
|---|-------------|
| 1. Major Practical (Cell Biology/Biophysics) | : 25 |
| 2. Minor Practical (Cell Biology/Biophysics) | : 10 |
| 3. Spotters (Cell Biology – 1 Genetics – 1,
Molecular biology 2- Biophysics - 2) (6x5) | : 30 |
| 3. Record | : 10 |
| Total | : 75 |

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Sl. No.:

Subject Code:

U15ZO4C6

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KARUR-5

B.Sc. ZOOLOGY – IV SEMESTER - CORE COURSE - VI

(For the candidates admitted from the year 2015-16 onwards)

GENETICS AND MOLECULAR BIOLOGY

- UNIT- I** Mendel's laws of inheritance – Gene interaction-Allelic and Non allelic interaction; Linkage, Crossing over-Definition– Mechanism with *Drosophila* as example; Multiple alleles: Blood groups and their inheritance. Sex determination – Chromosomal, Environmental and hormonal basis of sex determination.
- UNIT- II** Chromosome – Structure and Function – DNA as genetic material – Transformation –Conjugation-Transduction- Molecular Genetics: Fine structure of gene-cistron, recon and muton – gene expression and regulation in prokaryotes – Operon model.
- UNIT-III** Genetic code - Transcription and Translation - Protein biosynthesis; Initiation-Elongation-Termination-Post translational modifications-Gene bank and libraries.
- UNIT-IV** Central dogma of Molecular Biology- Structure and types of DNA: DNA replication and repair mechanism; Types of RNA – Processing of RNA molecules. Mutation-types & induced mutation - Molecular basis of mutation
- UNIT-V** Molecular techniques- Southern, Northern and Western blotting; DNA fingerprinting –PCR- Isolation of DNA and RNA -Sanger's DNA Sequencing method – Plasmid extraction. Centrifugation and precipitation; dialysis, chromatography, electrophoresis.

Text Book:

1. Meyyan, R.P., 2005. Genetics, Saras Publications, Nagercoil.
2. Verma, P.S. and V.K. Agarwal, 2002, Genetics, S.Chand & Co. New Delhi.
3. Arumugam, N, 2005. Molecular biology, Saras Publications, Nagercoil
4. Jeyanthi, G.P ,Molecular biology,2009,MJP Publishers, Chennai.

References:

1. Gardner, E.J., 2007, Principles of Genetics , 8th edition, Willey India Publishers
2. Miglani, G.S.,2007, Advanced Genetics –2nd edition, Narosa Publishing, New Delhi
3. Friefelder, D., 2003, Essential of Molecular Biology; Narosa Publishing, New Delhi
4. Lewin, B. 2008, Genes IX, Jones and Barlett Publishers, Boston.
5. Strickberger, M.W., 2005 Genetics, Prentice Hall of India, New Delhi.

CHAIRMAN – BOS

COE

Sl. No.:

Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS): KARUR-05
B.Sc., ZOOLOGY – IV SEMESTER – ALLIED COURSE - II
(For the candidates admitted from the year 2015-16 onwards)
PRACTICAL - I ALLIED BOTANY (COVERING SAC-I & SAC-III)

1. Micropreparation and Identification of types included in Algae, Fungi, Bryophytes, Pteridophytes and Gymnosperms.
2. Micropreparation of Stem, Root and Leaf of Dicot
3. To make dissection using dissection microscope and study the following families as per the syllabus.
4. Demonstrations: Osmosis, Ganong's photometer, Anaerobic respiration, Auxanometer and Clinostat.
5. To study the Ecological adaptations - *Eichhornia*, *Opuntia*, *Avicennia*.

CHAIRMAN – BOS

COE

Sl. No.:

Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS): KARUR-05
B.Sc., ZOOLOGY – IV SEMESTER – ALLIED COURSE - III
(For the candidates admitted from the year 2015-16 onwards)

ALLIED BOTANY- III
(Morphology, Taxonomy, Cytology, Anatomy, Embryology and Plant Physiology)

Unit - I: Plant Morphology: Leaf types and leaf shapes. Types of inflorescence- Racemose, cymose. Floral parts.

Unit - II: Taxonomy: Naming of plants - Binomial system. Classification by Bentham and Hooker. Distinguishing features and economic importance of following families, Annonaceae, Rutaceae, Ceasalpinaceae, Asclepiadaceae, Lamiaceae, Euphorbiaceae, Arecaceae, Poaceae.

Unit - III: Cytology: Ultra structure of cell and cell organelles - Endoplasmic reticulum, Golgi complex, Mitochondria, Chloroplast, Nucleus. Mitosis and Meiosis. Genetics: Mendel's law of inheritance- Monohybrid and Di hybrid ratios.

Unit - IV: Anatomy and Embryology: Meristematic tissues. Primary structure of stem, root and leaf in Dicot. **Embryology:** Structure and types of Anther, Female gametophyte. Pollination, Fertilization. Endosperm types- nuclear and cellular.

Unit - V: Plant Physiology: Absorption of water- transpiration and ascent of sap. Absorption of minerals and their role in plant nutrients. Photosynthesis - mechanism- light and dark reaction - C3 cycle only, Growth hormones.

Reference Books :

1. Singh, V.D.K 1983. Taxonomy of Angiosperms. Rastogi publication meerut. India
2. Pandey B.P 1997. Taxonomy of Angiosperms. Chand & Co P Ltd, New Delhi.
3. Vasishta P.C 1977. A text book of Plant anatomy. S. Nagin & Company. Jallunder ,New Delhi.
4. Singh, V., Pande, P.C. and Jain, D.K. - 4th Revised Edition (2013-14) -A Text Book Of Botany, Angiosperms- Rastogi Publications, Meerut.
5. S.S. Bhojwani and S.P. Bhatnagar - 2009 (Revised Edition) The Embryology of Angiosperms. - Vikas Publishing House, Pvt. Ltd., New Delhi.
6. Jain V.K. Fundamentals of Plant physiology.

CHAIRMAN – BOS

COE

Sl. No.:

Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KARUR-5

B.Sc., BOTANY – IV SEMESTER - NON-CORE ELECTIVE - II

(For the candidates admitted from the year 2015-16 onwards)

COMMUNICABLE DISEASES AND MANAGEMENT

- UNIT- I** **Classification** of communicable diseases, Mode of transmission. **Viral diseases** – Polio, Rabies, Yellow fever, Mumps, Influenza, Measles, Encephalitis, Hepatitis and AIDS – Causes, symptoms, prevention and cure.
- UNIT- II** **Bacterial diseases:** Dysentery, Cholera, Tuberculosis, Tetanus, Diphtheria, Typhoid, STD and Leprosy – causes, symptoms, prevention and cure.
- UNIT-III** **Protozoan Diseases:** Amoebiasis, Leishmaniasis, Trichomoniasis and Malaria – Causes, symptoms, prevention and cure. **Fungal Diseases:** Superficial and Systemic Mycoses.
- UNIT-IV** **Helminth Parasites:** Taeniasis, Ascariasis, Ancylostomiasis, Elephantiasis, and Filariasis – Causes, symptoms, prevention and cure.
- UNIT-V** **Vaccines and Antibiotics:** Types of Vaccines, Vaccination schedule for pregnant mothers and children. Types, sources and importance of antibiotics

Text Books:

1. Park, K. 2005 Park's Text book of Preventive and Social Medicine, M/s Banarsidas Bhanot, Publishers, Jabalpur, India, 18 Ed.,
2. Kotpal, R.L., A Text Book of Invertebrates, Rastogi Publishers, Meerut.

Reference Books:

1. Deepak Kumar, 2001, Diseases and Medicines in India; A Historical Overview, Tulika, New Delhi
2. Turk and Turk, Text Book of Social and Preventive Medicine

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COE

Sl. No.:

Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KARUR-5
B.Sc., ZOOLOGY – IV SEMESTER - SKILL BASED ELECTIVE - I
(For the candidates admitted from the year 2015-16 onwards)

HUMAN GENETICS AND ENDOCRINOLOGY

UNIT –I Introduction to Human genetics- Simple Mendelian traits in man –Twins- Amniocentesis- Human karyotyping-Human cytogenetics- Chromosome banding Techniques

UNIT-II Human chromosomes-chromosomal non-disjunction-chromosomal Aberration (Structural and Numerical)- Human genetic disorders- inborn errors of Metabolism: Phenylalanine metabolism-sickle cell anaemia- colour blindness- Thalassaemia- Haemophilia.

UNIT-III Eugenics- Euthenics-Euphenics; Inbreeding and Outbreeding, Heterosis, Pedigree analysis- Gene therapy and Genetic counseling.

UNIT-IV Endocrine glands in Man- Hypothalamus, Pituitary, Thyroid, Parathyroid- Structure, secretion and disorders - Mechanism of hormone action (Steroid & Peptide).

UNIT- V Adrenal, Endocrine pancreas, Testis and Ovary, Pineal body - Structure, Secretion and disorders - Gastrointestinal hormones.

Text Books:

1. Mandal, S., 2010, Fundamentals of human genetics, New central book Agency (P) Ltd
2. Kotpal, R.L., 1978, Concepts of genetics, Rastogi publication
3. Meyyan, R.P. 2010, Genetics, Saras Publication.
4. Prakash Lohar, 2007, Endocrinology Hormones and Human Health- M JP Publications
5. Berry, 2000, A.K, Text Book of Endocrinology, Emkay Publication-

Reference Books:

1. Verma P.S. and V.K.Agarwal,1998, Concepts of genetics, Human genetics and Eugenics. S. Chand & Company Ltd.
2. Rothwell. N.V. 1989. Human Genetics. Prentice Hall of India New Delhi.
3. Berry, A.K., 2000. Text Book of Endocrinology, Emkay Publication.
4. Guyton & Hall 2013, Text book of Medical Physiology, Elsevier Publication.
5. Turner , 1976. General Endocrinology , VI Ed., Topper Company Ltd, Japan.

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COE

Sl. No.:

Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KARUR-5
B.Sc., ZOOLOGY – V SEMESTER - CORE COURSE - VII
(For the candidates admitted from the year 2015-16 onwards)

PHYSIOLOGY AND BIOCHEMISTRY

- UNIT- I** Nutrition – types; calorific values; balanced diet, Digestion in man; malnutrition; peptic ulcer; appendicitis; liver cirrhosis -Respiration: transport of oxygen and carbon dioxide in man, control, pneumonia and bronchitis - Circulation: blood Composition; types of heart; origin and conduction of heart beat; blood pressure; coronary blood vessels; myocardial infarction; ECG, angiogram, angioplasty and bye-pass surgery.
- UNIT- II** Excretion: types of nitrogenous waste; structure of mammalian kidney and urine formation; renal failure, kidney stone and kidney transplantation - Osmo-ionic regulation in fresh water, marine and terrestrial organisms. (one example for each) - Muscle physiology: types of muscle, ultra structure of skeletal muscle, Chemistry and mechanism of muscle contraction.
- UNIT-III** Coordinating system: Nerve physiology, types of neuron, impulse transmission, synapse, synaptic transmission, reflex action - Receptors- Optic, Olfactory and Auditory receptors in man – Reproductive Physiology-Anatomy of Male and Female reproductive system of human – Hormonal control of reproduction.
- UNIT-IV** Classification, Structure and functions of carbohydrates proteins and lipids;– source, functions, and deficiency diseases of vitamins and minerals (Ca, P, K, Mg, Na, Fe and Cu)
- UNIT-V** Metabolism of carbohydrates, proteins and lipids; energy kinetics, structure of ATP and hormonal control. Enzymes – Major Types and characteristics, mode of action – theories, factors affecting enzyme action, Enzyme inhibition and types.

Text Books:

1. Mariakuttikan, 2005, Animal Physiology, Saras Publications, Nagercoil.
2. Arumugam, 2007, Biochemistry, Saras Publications, Nagercoil.
3. P.S Verma and V.K.Agarwal S.1980, Animal Physiology, S. Chand & Co. Ltd. New Delhi.
4. Ambika shanmugam,2009, Fundamentals of Biochemistry for medical students, Karthik Printers Chennai.

Reference Books:

1. Leninger, L. 1990, Biochemistry, W.H. Freeman & co.
2. Hoar, W.S., 1983, General and comparative physiology, Prentice Hall of India.
3. Harper, H.A., 193, Review of Physiological chemistry, Muruen Ascian Ed.
4. Nagabushanam, R., 1991, Animal Physiology, S. Chand & Co.

CHAIRMAN – BOS

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Sl. No.:

Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KARUR-5
B.Sc., ZOOLOGY – V SEMESTER - CORE COURSE - VIII
(For the candidates admitted from the year 2015-16 onwards)

BIO TECHNOLOGY AND MICROBIOLOGY

- UNIT-I** Scope and importance of biotechnology. Genetic Engineering: Tools of genetic Engineering – Enzymes and vectors; Gene cloning - isolation of desired DNA, insertion of DNA into vector, introducing rDNA into host, identification, selection and expression of cloned DNA. Gene manipulation in Eukaryotes – *Agrobacterium* as natural genetic engineer; Transgenic animals.
- UNIT- II** Fermentation – fermenter construction, types, process of fermentation – upstream and downstream; types of fermenters – solid state, submerged, and semi solid, uses of fermentation; Ethanol production, Applications of biotechnology in industries. Hybridoma technology and uses; Applications of biotechnology in medicine – production of vaccines - gene therapy, forensic medicine.
- UNIT-III** Bio-fertilizers-microbes as bio-fertilizers, culture methods, Single Cell Protein, bio-pesticides; Environmental Biotechnology: Biodiversity and its conservation, Applications of biotechnology in agriculture and environment. Sources, uses and applications of enzymes; Immobilization of enzymes-need, methods, types and uses.
- UNIT-IV** Introduction, history and scope of microbiology – General structure of bacteria and virus – Outline classification of each group and identification – Sterilization techniques- Bacterial growth, culture media, continuous and batch culture techniques, bacterial growth curve. Food Microbiology: food poisoning, food spoilage, food preservation.
- UNIT-V** Industrial microbiology: Production of antibiotics with reference to penicillin. Soil microbiology: role of soil microbes in Nitrogen fixation. Medical microbiology: Bacterial Diseases: cholera, tuberculosis, leprosy, tetanus – Viral Diseases: jaundice, small pox, AIDS, Poliomyelitis, causative organism, symptoms, impact on the host and control measures.

Text Books:

1. Kumaresan, 2009, Biotechnology, Saras Publications, Nagercoil.
2. Ananda Narayanan, T. and Jayram Paniker, C.K., 2000, Textbook of Microbiology, 6th Ed. Orient Longman Ltd., Chennai.

Reference Books:

1. Balasubramanian, D., 1996, Concepts in Biotechnology, University Press (India) Ltd., Hyderabad.
2. Dubey, R.C. 1995, Text book of Biotechnology, S. Chand & Co. New Delhi.
3. Trevan, M.D.1993, Biotechnology, the Biological Principles, Tata McGraw Hill Publishing Co., New Delhi.
4. Pelczar, M.J., Reid, R.D. and Chan. E.C.S, 2002, Microbiology, 5th Ed. Tata McGraw Hill Publishing Co. Ltd., New Delhi.
5. Dubey, R.C. and Maheswari, D.K., 2005, Text book of Microbiology, S. Chand & Co. New Delhi.
6. Powar, C.B.and Dagainawala. H.F., 1982, General Microbiology Volume I &II, Himalayas Publishing House, Mumbai.

CHAIRMAN – BOS

COE

Sl. No.:

Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KARUR-5
B.Sc., ZOOLOGY – V SEMESTER - CORE COURSE - IX
(For the candidates admitted from the year 2015-16 onwards)

BIOSTATISTICS & BIOINFORMATICS

- UNIT- I** Data collection – primary and secondary data; Processing the data – classification and tabulation; Organization of data – Individual, Discrete and Continuous series;
- UNIT- II** Diagrammatic and Graphical presentation of data – Bar diagram, Pie diagram, Frequency polygon, Frequency curve – Histogram. Measures of central tendency – Mean, Median and Mode;
- UNIT-III** Measures of dispersion – Range, Standard deviation and Variance and Standard error. Co-relation-Regression. Test of significance – Chi square test and ‘t’ test.
- UNIT-IV** Introduction, Biological databases – Primary, Secondary and Composite databases. Structural databases – PDB (Protein Data Bank), SWISPROT, CATH (Class Architecture Topology Homology), SCOP (Structural Classifications of proteins).
- UNIT-V** DNA databases- NCBI, EMBL, DDBJ, Pub Med and Genbank. Human Genome Project. Bioinformatics Tools- BLAST, FASTA, RASMOL, PHYLIP. Sequence Alignment Tool-PAM and BLOSUM.

Text Books:

1. Palanivel *et al.*, 2002, Biophysics, Biostatistics and Computer Applications, Saras Publications, Nagercoil.
2. Thomas.C. Bartee, 2005, Digital Computer Fundamentals Tata McGraw Hill & Co., New Delhi.
3. Sundaralingam.R, 2008, Bioinformatics, Saras Publications, Nagercoil.

Reference Books:

1. Gurumani, 2006, Biostatistics, MJP Publishers, Chennai.
2. Zar, J.H., 1974, Biostatistical analysis, Prentice Hall Inc., New Jersey, USA.
3. Balagurusamy, E., 1984, Programming in BASIC, Prentice Hall of India.
4. Rajaraman, V., 1985, Fundamentals of computers, Prentice Hall of India.
5. KaviKishore, Chavali, L.N., 2013, Principles of Biological Databases, Himalayas Publishing House Pvt. Ltd. Mumbai.
6. Baxevanis, A. and Ouellette, B.F.F., 2006, Bioinformatics, A Practical Guide to the Analysis of Genes and Proteins, John Wiley and Sons, New Delhi.

CHAIRMAN – BOS

COE

Sl. No.:

Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KARUR-5

B.Sc., ZOOLOGY – V SEMESTER - ELECTIVE COURSE - I

(For the candidates admitted from the year 2015-16 onwards)

POULTRY SCIENCE

UNIT- I Introduction to poultry science – Historical review. Nomenclature of breeds of fowl, classification of fowls, selection of breed – natural and artificial brooding. Housing and equipment – General principles of building poultry sheds, deep litter system, laying cages.

UNIT- II Brooding and rearing – Methods of brooding, brooder temperature, space and duration; feed, water and space allowance, debeaking – vaccination. Management of growers, layers, broilers – lighting of chicks, growers, and layers; Summer and winter management.

UNIT-III Feed additives – names, allowance and usage of food additives – Food stuffs for poultry in relation to protein, amino acids, minerals (Ca and P), vitamins and fiber content. Feed formulations for chicks, growers, Phase I to Phase III layers and broilers.

UNIT-IV Short account on cause, symptoms, prevention, control and treatment of viral, bacterial, fungal and parasitical diseases.

UNIT-V Nutritive value of egg, factors affecting egg size, storage and preservation of egg, marketing, incubation and hatching of eggs.

Text Books:

1. Banerjee, G.C., 1992, A textbook of animal husbandry, Oxford and IBM Publishing Co., New Delhi.
2. Gnanamani, M.R., 2010, Modern Aspects of Commercial Poultry Keeping, Deepam Publications, Madurai.

Reference Books:

1. Sunil Kumar Das, 1994, Poultry production, CBC Publishers and Distribution, Delhi.
2. Shukula, G.S. and Upadhyay, V.B., 1997, Economic Zoology, Rakesh Rastogi Publication, Meerut.
3. Indian Poultry Industry year book 1975-76. By Sakuntlak B. Gupta, C-35, New Bactak Road, New Delhi.

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Sl. No.:

Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KARUR-5
B.Sc., ZOOLOGY – V SEMESTER - SKILL BASED ELECTIVE - II
(For the candidates admitted from the year 2015-16 onwards)

MEDICAL LABORATORY TECHNOLOGY

Unit-I- CLINICAL LAB MAINTANANCE

Scope –Hygiene and Safety measures for Technicians- lab safety - Cleaning and maintenance of lab equipments and glass wares- First Aid and Introduction to Clinical research.

Unit-II- CLINICAL BIOCHEMISTRY

Blood chemistry- Preservation of blood- Anticoagulants- Analysis of Blood- separation of serum-platelet count and coagulation test- glucose estimation – Lipid profile-(TGL, HDL, LDL)- hemoglobin-Urea, Urine Sugar, Albumin and Creatine analysis

Unit-III-CLINICAL MICROBIOLOGY

Disinfection and sterilization of lab, Culture media preparation- Serial dilution- Isolation of pure culture- antibiotic sensitive test-Types of Staining procedure for microbes- Antimicrobial agent, Common viral diseases and viral vaccines-Common bacterial diseases- common fungal diseases

Unit-IV- CLINICAL DIAGNOSTICS

Diagnostic pathological techniques- Entamoeba- Trypanasoma-Plasmodium- Ascaris- Tapeworm- Schistosoma- Wucheraria. Liver and renal function test- Thyroid test- semen analysis- stool, sputum analysis

Unit-CLINICAL IMMUNOLOGY

Separation of antibodies- Ag- Ab reactions- Immuno electrophoresis- ELISA- RIA- Widal test- Pregnancy test- Allergy test (Montox test)- VDRL test.

Textbooks

- 1.Sood Ramnik ., Edition:1/e ,2006, Textbook of Medical Laboratory Technology, Jaypee Brothers Medical Publishers Pvt. Ltd
- 2.Gupte Satish ., Edition:2/e .,2014,The Short Textbook of Medical Laboratory for Technicians, Jaypee Brothers Medical Publishers Pvt. Ltd
- 3.Sood Ramnik, Edition:1/e ,2009,Concise Book of Medical Laboratory Technology: Methods and Interpretations, Jaypee Brothers Medical Publishers Pvt. Ltd
- 4.Barbara H. Estridge, Anna P. Reynolds, Norma J. Walters., 1999, Basic Medical Laboratory Techniques ,Edition 4, Publisher: Cengage Learning, New Delhi.
5. R Pramila., Edition:1/e,2008 Pocket Book on Laboratory Tests for Nurses, Jaypee Brothers Medical Publishers Pvt. Ltd

Reference books

- 1.Ramakrishnan S, Sulochana KN., Edition:1/e, 2012, Manual of Medical Laboratory Techniques, Jaypee Brothers Medical Publishers Pvt. Ltd
- 2.Rashid Najat, Sood Ramnik., Edition:1/e.,2013, Manual of Laboratory Safety, Jaypee Brothers Medical Publishers Pvt. Ltd
- 3.Barbara h. Estridge & Anna p. Reynolds Edition: 1,2008,Laboratory Techniques in Hematology, Jaypee Brothers Medical Publishers Pvt. Ltd

CHAIRMAN – BOS

COE

Sl. No.:

Subject Code:

U15ZO5S3

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KARUR-5

B.Sc. ZOOLOGY - V SEMESTER – SKILL BASED ELECTIVE - III

(For the candidates admitted from the year 2015-16 onwards)

VERMITECHNOLOGY

- UNIT- I** Introduction, Earthworms – Ecological types – Trophic classification of earthworm, Physical and chemical effects of earth worms on soils.
- UNIT- II** Earthworms: Structure – External features – Internal features – Earthworms: Lifecycle.
- UNIT-III** Earthworms for culture – worms used in vermiculture – Earthworm breeding – Vermicompost.
- UNIT-IV** Vermiculture and vermitech – Preparations for starting vermiculture – Vermibeds. Vermi wash unit.
- UNIT-V** Applications of vermiculture – Effect of earthworms on plant growth – applications in organic agriculture – Earthworms in medicine, as feed and other uses.

Text Book:

1. Thiagarajan, S., 2002, Commercial Zoology Tee Jay Publications
2. Vermitecnology,
3. Ramalingam.R., 2007, Manbulu Valarppu, Tamil Nadu Higher Education Council, Chennai.

Reference Book:

1. Seethalakshmi.M, and Shanthi.R., 2014, Vermitechnology, Saras Publications, Nagercoil.
2. Sultan A. Ismail, 1977, Vermicology, The biology of earthworms, Orient Longman Ltd., Hyderabad.
3. [Sathe Tukaram Vithatran](#), 2004, Vermiculture and Organic Farming,
4. NIIR Board, 2004, The Complete Technology Book on Vermiculture and Vermicompost

CHAIRMAN – BOS

COE

Sl. No.:

Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS) KARUR-05
ALL UG COURSES – V SEMESTER – PART - IV
(For the candidates admitted from the year 2015 - 2016 onwards)

SOFT SKILLS DEVELOPMENT

Learning Objective

Today's world is all about relationship, communication and presenting oneself, one's ideas and the company in the most positive and impactful way. This course intends to enable students to achieve excellence in both personal and professional life.

- UNIT- I Know Thyself/Understanding Self**
Introduction to Soft Skills-Self discovery-Developing positive attitude-Improving perceptions-Forming values.
- UNIT- II Interpersonal Skills/Understanding Others**
Developing interpersonal relationship-Team building-group dynamics-Net working-Improved work relationship.
- UNIT-III Communication Skills / Communication with others**
Art of listening-Art of reading-Art of speaking-Art of writing-Art of writing e-mails-e mail etiquette.
- UNIT-IV Corporate Skills / Working with Others**
Developing body language-Practicing etiquette and mannerism-Time management-Stress management.
- UNIT-V Selling Self / Job Hunting**
Writing resume/cv-interview skills-Group discussion-Mock interview-Mock GD-Goal setting-Career planning.

Text Book:

Meena.K and V.Ayothi (2013) A Book on Development of Soft Skills (Soft Skills : A Road Map to Success), P.R.Publishers & Distributors, No, B-20 & 21, V.M.M. Complex, Chatiram Bus Stand, Thiruchirappalli - 620 002.

(Phone No:0431 - 2702824: Mobile No: 94433 70597, 98430 74472)

Alex. K (2012) Soft Skills - Know Yourself & Know the World, S.Chand & Company LTD, Ram Nagar, New Delhi - 110 055.

Mobile No: 94425 14814 (Dr.K. Alex)

Reference Books

- (i) Developing the leader within you John c Maxwell
- (ii) Good to Great by Jim Collins
- (iii) The seven habits of highly effective people Stephen Covey
- (iv) Emotional Intelligence Daniel Goleman
- (v) You can win Shive Khera
- (vi) Principle centred leadership Stephen Covey.

CHAIRMAN - BOS

COE

Sl. No.:

Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KARUR-5
B.Sc. ZOOLOGY – VI SEMESTER - CORE COURSE – X
(For the candidates admitted from the year 2015-16 onwards)

PRACTICAL – III

(Physiology and Biochemistry, Biotechnology and Microbiology & Biostatistics and Bioinformatics)

I. Physiology and Biochemistry

1. Human salivary Amylase activity in relation to temperature and calculation of Q₁₀
2. Enumeration of RBC and WBC
3. Differential count of WBC
4. Qualitative tests for Protein, Carbohydrate and Lipid
5. Qualitative tests for nitrogenous wastes.

Spotters

- A) Kymograph, B) Haemoglobinometer C) Sphygmomanometer
D) Haemoglobin model

II Biotechnology and Microbiology

1. Isolation of DNA – Demonstration only
2. Serial Dilution Technique
3. Observation of Bacterial mobility by hanging drop method
4. Simple and Gram staining of Bacteria

Spotters

1. Transgenic animals: Sheep, Cow & Mouse
2. Model of Vectors: PBR³²², SV40 & Ti Plasmid. 3. PCR
4. Bacterial Colony Counter 5. Micropipette 6. Autoclave 7. Petri dish
8. Inoculation loop.

II. Biostatistics and Bioinformatics

1. Calculation of Mean, Median, Mode and Standard deviation using Molluscan shells.

Spotters

1. Bar diagram, 2. Histogram, 3. Pie diagram, 4. Wire frame model and Ball & Stick Model of Myosin 5. Wire frame model and Ball & Stick Model of Cytochrome

A record of laboratory work shall be submitted at the time of practical examination.

Mark distribution:

1. Major practical (Physiology and Biochemistry)	: 20 Marks
2. Minor Practical (Biochemistry/Biostatistics)	: 15 Marks
3. Spotters (6x5) Physiology and biochemistry –2 Biotechnology– 1, Microbiology-1, Biostatistics–1, Bioinformatics-1	: 30 Marks
4. Record	: 10 Marks
Total	: 75 Marks

CHAIRMAN – BOS

COE

Sl. No.:

Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KARUR-5
B.Sc., ZOOLOGY – VI SEMESTER - CORE COURSE – XI
(For the candidates admitted from the year 2015-16 onwards)

PRACTICAL – IV

(Ecology, Evolution and Toxicology, Developmental biology and Immunology)

Ecology

1. Estimation of Salinity in water samples
2. Estimation of dissolved oxygen in water samples
3. Estimation of Carbonate and bicarbonates water samples
4. Mounting of Zoo Plankton
5. Animal Association: Mutualism, Commensalism & Parasitism.
6. Study of Intertidal (Sandy, Muddy & Rocky) fauna.
7. Visit to different habitats for studying the adaptations of animals (Educational Tour may be arranged).
8. Spotters: (a) Secchi disc, (b) Wet and Dry hygrometer, (c) Rain gauge, (d) Six's Maximum- Minimum thermometer, (e) Plankton net, (f) pH meter and (g) Fortin's Barometer.

Evolution

1. Animals of Evolutionary Significance: *Peripatus*, *Archaeopteryx*.
2. Colouration - *Chameleon*, *Lycodon* & *Krait*.
3. Mimicry - *Phyllium*, Stick insect
4. Fossils - Ammonoid, Nautiloid and Echinoid

Toxicology

1. Evaluation of Toxicity of textile/Paper mill effluent through LC50 96 hr value in Fishes.
2. Determination of pH using pH paper and pH meter.

Developmental biology & Immunology

1. Chick Blastoderm mounting – Demonstration only.
2. Examination of prepared microslides: (a) To study Blastula, gastrula & yolk plug stages in frog (b) 24 hours, 48 hours, 72 hours & 96 hours developmental stages in chick
3. ABO blood grouping in human.
4. Rh typing in human
5. Lymphoid organs of mouse – Demonstration only

A record of laboratory work and field visit report shall be submitted at the time of practical Examination.

Mark distribution:

- | | |
|--|------------|
| 1. Major practical (Environmental biology & Evolution) | : 25 Marks |
| 2. Minor Practical (Developmental biology & Immunology) | : 15 Marks |
| 3. Spotters (4x5) (Environmental biology – 1, Evolution-1
Developmental biology – 1, Immunology – 1) | : 20 Marks |
| 4. Field visit report & Record (05 + 10 = 15) | : 15 Marks |

Total : 75 Marks

CHAIRMAN – BOS

COE

Sl. No.:

Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KARUR-5

B.Sc. ZOOLOGY – VI SEMESTER- CORE COURSE - XII

(For the candidates admitted from the year 2015-16 onwards)

ECOLOGY, EVOLUTION AND TOXICOLOGY

- UNIT- I** Ecology and Environmental science – definition, scope, branches; abiotic factors– water, soil, temperature and light. Biotic factors – animal relationship – symbiosis, commensalism, mutualism, antagonism, antibiosis, parasitism, predation, competition. Ecosystem – definition, structure, pond ecosystem, primary production, secondary production, food-chain, food-web, trophic levels, energy flow, pyramid of biomass, pyramid of energy.
- UNIT- II** Community ecology-types, characteristics, stratification of community, community interdependence, Ecotone and Edge effect, Ecological niche, Ecological succession. Population Ecology – definition of population, density, natality, mortality, age distribution, age pyramids, population growth, population equilibrium, biotic potential, regulation of population growth.
- UNIT-III** Origin of life, Lamarckism, Darwinism, De Vries theory of mutation, Modern synthetic theory of evolution. Evidences for evolution – Embryological and Biochemical evidences.
- UNIT-IV** Colouration and Mimicry. Hardy-Weinberg principle. Speciation, Isolating mechanism. Evolution of Man – Cultural and future.
- UNIT-V** Toxicology-Introduction, Scope and importance-Definition of toxicants-Types-Air Water and Food-Evaluation of toxicity-LC₅₀, LD₅₀, ED₅₀-Biomagnification, biotransformation and bioaccumulation-Effect of toxic metal, pesticide and carcinogen.

Text Book:

- a. Arumugam, 2002, Ecology, Saras Publications, Nagercoil.
- b. Arumugam, 2002, Evolution, Saras Publications, Nagercoil.
3. Subramanian.M.A.2004, Toxicology principles and methods.MJP Publishers.

Reference Books:

1. Odum, E.P., 1971, Fundamentals of Ecology, W.B. Saunders Company, Philadelphia.
2. Clarke, G.L., 1954, Elements of Ecology, John Wiley & Sons, New York.
3. Rastogi, V.B. and M.S. Jayaraj, 1989, Animal Ecology and Distribution of animals, Kedarnath Ramnath.
4. Stansfield, W.D., 1977, The Science of Evolution, Collier Macmillan, London.
5. Dobzhansky, T., et al, 1977 Evolution, W.H. Freeman and Co., San Francisco.
6. Subramanian.M.A.2004, Toxicology principles and methods.MJP Publishers.
7. Bhattacharya, S., 2011, Environmental Toxicology, Books and Allied Pvt. Ltd., Kokatta.

CHAIRMAN – BOS

COE

Sl. No.:

Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KARUR-5
B.Sc., ZOOLOGY – VI SEMESTER - CORE COURSE - XIII
(For the candidates admitted from the year 2015-16 onwards)

DEVELOPMENTAL BIOLOGY AND IMMUNOLOGY

- UNIT- I** Gametes and gametogenesis: Structure and types of sperm and egg; Spermatogenesis and spermiogenesis; Oogenesis; growth of Oocyte, Vitellogenesis, organization of egg cytoplasm, polarity and symmetry, maturation of egg and egg envelopes. Fertilization – External and internal, sperm – egg interaction, physiological changes in the organization of egg cytoplasm, theories of fertilization.
- UNIT- II** Cleavage – Patterns and types of cleavage, Factors affecting cleavage; Blastulation – types of blastula – Presumptive organ forming areas in frog and chick-fate maps; Gastrulation in frog and chick, Morphogenetic movements – epiboly and emboly.
- UNIT-III** Organogenesis – Development of eye; Organiser concept; Embryonic induction; Foetal membranes in chick, Placentation in mammals; Concept of test tube baby; Nuclear transplantation.
- UNIT-IV** History and scope of immunology, Immunity and its types; Lymphoid organs- primary and secondary (thymus, bone marrow, Bursa fabricius, spleen, tonsil, lymph node and Peyer's patches.
- UNIT-V** Immunoglobulins – structure and functions; Antigen – antibody reaction, Immunology of infectious diseases, AIDS; Humoral and Cell mediated immune response.

Text Books:

1. Arumugam, 2002, Embryology, Saras Publications, Nagercoil.
2. Arumugam, 2002, Immunology, Saras Publications, Nagercoil.

Reference Books:

1. Balinsky, B.I., 1981, An introduction to embryology, W.B. Saunders Company, Philadelphia.
2. Verma, P.S. and V.K. Agarwal, 2005, Chordate Embryology, S.Chand & Co., New Delhi.
3. Nandhini, S. 1994, Immunology Introductory text book, New Age Int (P) Ltd. Publications, New Delhi.
4. Chakravarthy, A.K. 1996, Immunology, Tata McGraw Hill Publishing Co. Ltd., New Delhi.

CHAIRMAN – BOS

COE

Sl. No.:

Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KARUR-5

B.Sc. ZOOLOGY– VI SEMESTER- ELECTIVE COURSE- II

(For the candidates admitted from the year 2015-16 onwards)

AQUACULTURE

- UNIT- I** Aquaculture – History and present status in India, Cultivable species of fishes
Culture of Live feed organisms – Rotifers and *Artemia*.
- UNIT- II** Composite fish culture – Carps in inland waters, Site selection, Pond
construction, pond preparation.
- UNIT-III** Water Quality Management, Control of predatory organisms, Seed transport
and Stocking, Pathology – Parasitic infection, Diseases of fishes and prawns
and their control measures.
- UNIT-IV** Hypophysation or Induced breeding in carps, Hybrid fish, Transgenic fish,
Techniques for hatching and spawning. Transport of fry and fingerlings.
- UNIT-V** Methods of Harvesting, Freezing techniques, Canning, Smoking, Fish products
– fish meal, fish oil and fish pickle. Marketing – Export and Import countries,
Quality control.

Text Book:

1. Arumugam, 2008, Aquaculture, Saras Publications, Nagercoil.

References:

1. Zade, S.B., Khune, C.J., Sitre, S.R., and Tijare, R.V., 2011, Principles of Aquaculture, Himalaya Publishing House, Mumbai.
2. Takeo Imai, 1977, Aquaculture in Shallow seas, , Oxford & IBH Publishing Co., New
3. Delhi Quereshi, T.A. and Quereshi, N.A., Indian Fishes.
4. Pillay, T.V.R., Aquaculture – Principles and Practices, Fishing News Books.
5. CMFRI, Coastal aquaculture – Marine Prawn culture.

CHAIRMAN – BOS

COE

Sl. No.:

Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KARUR-5

B.Sc. ZOOLOGY – VI SEMESTER - ELECTIVE COURSE - III

(For the candidates admitted from the year 2015-16 onwards)

ENTOMOLOGY

- UNIT- I** Taxonomy – Basics of insect classification, Classification up to super family level, Key characteristics with South Indian examples, External Anatomy of a typical insect – Exoskeleton, Head, Throat and Abdomen, Metamorphosis of insects, Mouth parts in insects, Types of larvae and pupae.
- UNIT- II** Physiology of insects – Digestive system, Excretory system, Respiratory system, Circulatory system, Nervous system and sense organs, Reproductive system, Endocrine system and pheromones.
- UNIT-III** Classification based on Economic Importance of Insects. Insects relation to Public Health – Mosquito and Housefly; Household insect pests – Ant, Termite and Cockroach – Beneficial Insects – Economic Importance of Honeybee, Silkworm and Lac insect; Insect pollinators, Parasites, Predators and Scavengers.
- UNIT-IV** Pest – Definition, Insect pests of Paddy, Sugarcane, Cotton, Groundnut and Brinjal- damages caused and control measures; Common pests of stored products and control measures
- UNIT-V** Methods and Principles of pest Control – Natural, Mechanical, Physical, Chemical and Biological control methods, Integrated Pest Management, Causes for assuming pest status. Pest surveillance & forecasting pest outbreak, Estimation of damage caused by insect pest to crops.

Text Books:

1. Vasantharaj David, B., 2005, Elements of Economic Entomology, Popular Book Depot, Chennai.
2. Nayar, K.K., T.N. Anathkrishnan and B. Vasantharaj David, General and Applied Entomology

Reference Books:

1. Ambrose Dunston, P. Insects: Structure, Function and Biodiversity
2. Chapman, R.F., The Insects: Structure and Function
3. Wigglesworth, V.B., Principles of Insect Physiology.
4. Krishnan, N.T., 1993, Economic Entomology, J.J. Publications, Madurai.
5. Ramkrishnan Ayyar, T.V., 1984, Hand Book of Economic Entomology for South India, International Books and Periodicals Supply Service, New Delhi.

CHAIRMAN – BOS

COE

Sl. No.:

Subject Code:

U15EA4

அரசு கலைக் கல்லூரி (தன்னாட்சி), ஈரூர் - 639005
அனைத்து இளநிலை - ஆறாம் பருவம் - பகுதி - 5
(2015 - 2016 கல்வியாண்டு முதல் பயிலும் மாணவர்களுக்கு
உரியது)

பாலின சமத்துவம்

அலகு 1

பாலினம்தொடர்பான கோட்பாடுகள் : பாலியல் - பாலினம் - உடற்கூறு ரீதியில்
நிருணயித்தல் - ஆணாதிக்கம் - பெண்ணியம் - பாலின பாகுபாடு - பாலின வேலைப்
பாகுபாடு - பாலின ஒருபடித்தானவர்கள் - பாலின உணர்வூட்டல் - பாலின சமவாய்ப்பு
- பாலின சமத்துவம் - பாலின மையநீரோட்டமாக்கல் - அதிகாரப்படுத்துதல்.

அலகு 2

மகளிரியல் : பாலினசமத்துவக்கல்வி - பல்கலைக்கழக மானியக்குழுவின்
வழிகாட்டுதல்கள் - ஏழாவது ஐந்தாண்டு திட்டம் முதல் பதினோராவது
ஐந்தாண்டுத்திட்டம் வரை - பெய்ஜிங் மாநாடு - பெண்களுக்கு எதிரான
அனைத்தவகையான பாகுபாடுகளையும் நீக்கும் ஒப்பந்தம் - 1979 (CEDAW) -
சட்டத்தில் பெண்களுக்கு ஆதரவானவற்றை இணைத்தல் அல்லது உட்படுத்துதல்
- பெண்களுக்கு எதிரானவற்றை ஒதுக்குதல்.

அலகு 3

பாலியல் பாகுபாட்டிற்கான தளங்கள் : குடும்பம் - பாலின விகிதாச்சாரம் -
கல்வி - ஆரோக்கியம் - ஆளுமை - மதம் - வேலைவாய்ப்பு - ஊடகங்கள் - அரசியல் -
சட்டம் - பாலியல் துன்புறுத்தல்கள்.

அலகு 4

பெண்கள் மேம்பாடு மற்றும் பாலின சமத்துவ மேம்பாடு : பெண்களுக்கான
சமத்துவ முயற்சிகள் - சர்வதேச பெண்களுக்கான சகாப்தம் - சர்வதேச பெண்களுக்கான
ஆண்டு - பெண்களின் மேம்பாட்டிற்கான தேசியக் கொள்கைகள் - பெண்கள் அதிகார
ஆண்டு 2001 - சர்வதேசக் கொள்கைகளை மையநீரோட்டமாக்கல்.

அலகு 5

பெண்கள் இயக்கங்கள் மற்றும் பாதுகாப்பு நிறுவன ஏற்பாடுகள் : தேசிய மகளிர்
ஆணையம் - மாநில மகளிர் ஆணையம் - அனைத்து மகளிர் காவல் நிலையங்கள் -
குடும்ப நீதிமன்றங்கள் - குடும்ப வன்முறையிலிருந்து பெண்களைப் பாதுகாக்கும் சட்டம்
2005 - பணியிடங்களில் பெண்கள் மீதான பாலியல் துன்புறுத்தல்களைத் தடுப்பதற்கான
உச்சநீதிமன்ற வழிகாட்டுதல்கள் - விசாகா தீர்ப்பு - தாய் சேய் சேம நலச்சட்டம் - பெண்
சிசுவை கருவில் கண்டறிவதைத் தடை செய்யும் சட்டம் 1994 - ஈவ்டிசிங் - பெண்களைத்
தொல்லை செய்தல் தடுப்புச் சட்டம் - மகளிர் சுயஉதவிக்குழுக்கள் - பஞ்சாயத்து
அமைப்புகளுக்கான 73வது மற்றும் 74வது சட்டத்திருத்தம்.

Text Book:

1. பாலின சமத்துவம் - முனைவர். ஆ. ஜெகதீசன் - ராஜா பதிப்பகம், திருச்சி.